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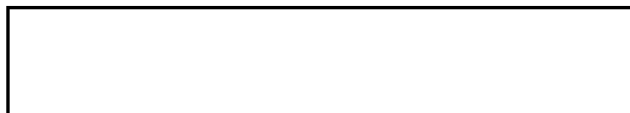
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Weekly Surveyor

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TSWS-42/75
20 October 1975

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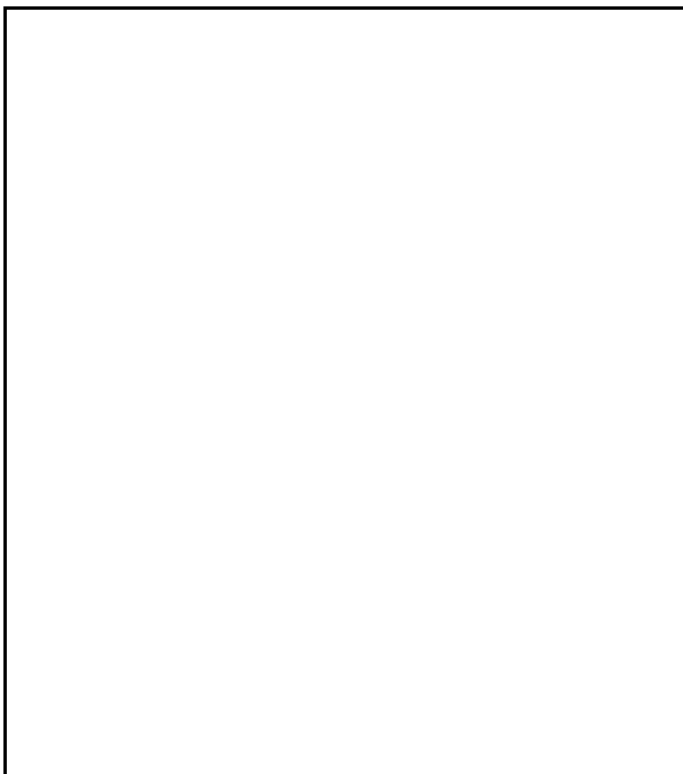
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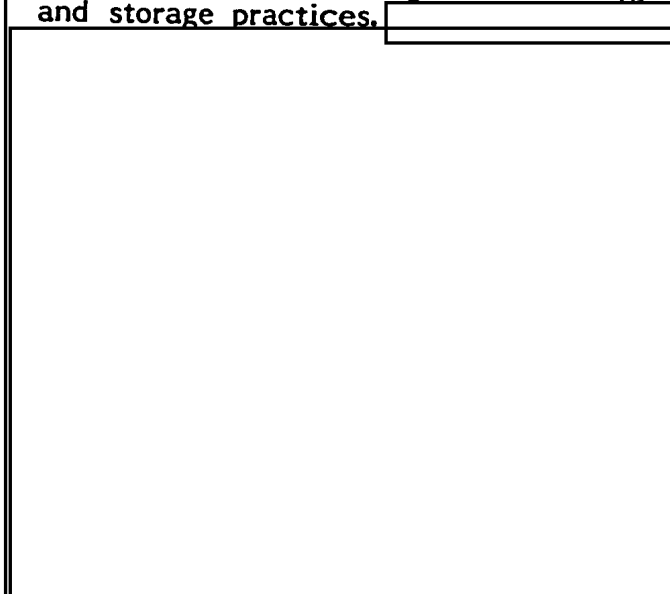
WEEKLY SURVEYOR

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USSR AND EASTERN EUROPE

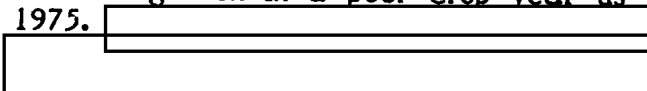


stored grain may be a serious problem. This may be giving added impetus to recent Soviet efforts to eliminate deficiencies in post-harvest grain technology and storage practices.



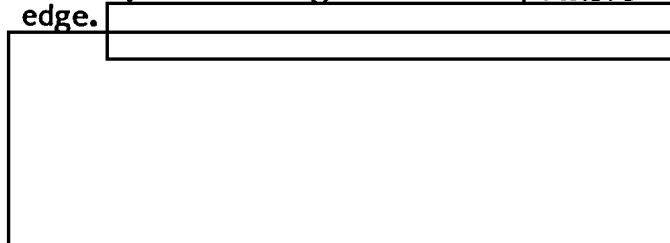
WESTERN EUROPE

The Soviets will require a minimum of several years to achieve the fundamental changes in the design of their grain harvesting combines needed to match the operational efficiency of Western equipment. The inadequate size bunkers (grain hoppers) and associated features lower productivity of Soviet combines and lead to excessive losses and high costs of harvesting even in a poor crop year as 1975.



Soviet concern with possible contamination of grain fed to swine indicates that microbial toxin production in improperly

Plessey Microsystems of the UK has become the first firm to announce plans to introduce a commercial computer memory element based on magnetic bubble technology. The first Plessey bubble chip, a modest 8K-bit capacity, is planned for early 1976 with 16K-bit and 64K-bit devices to follow. Should it prove successful, Plessey's early entry into the marketplace could give it a competitive edge.



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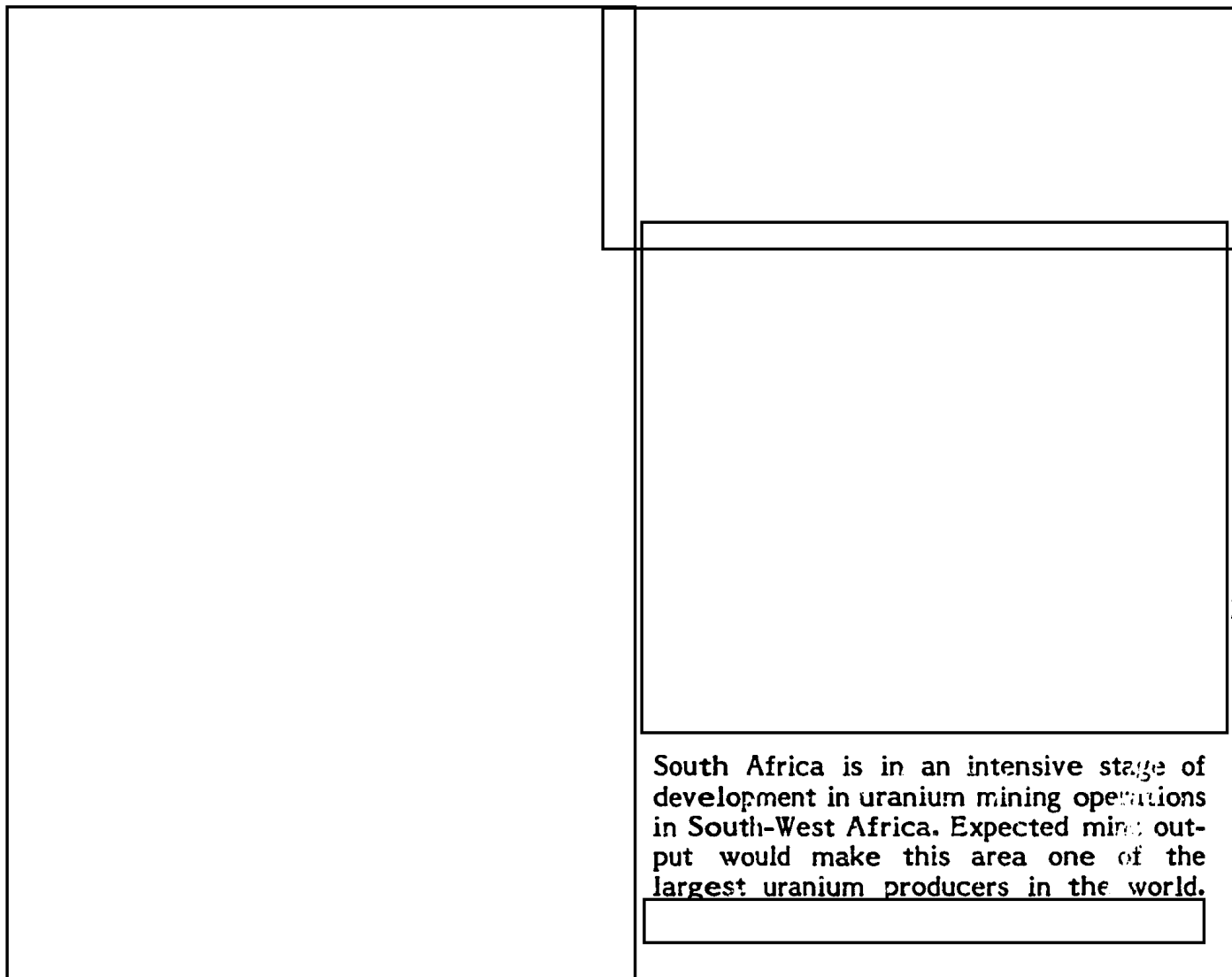
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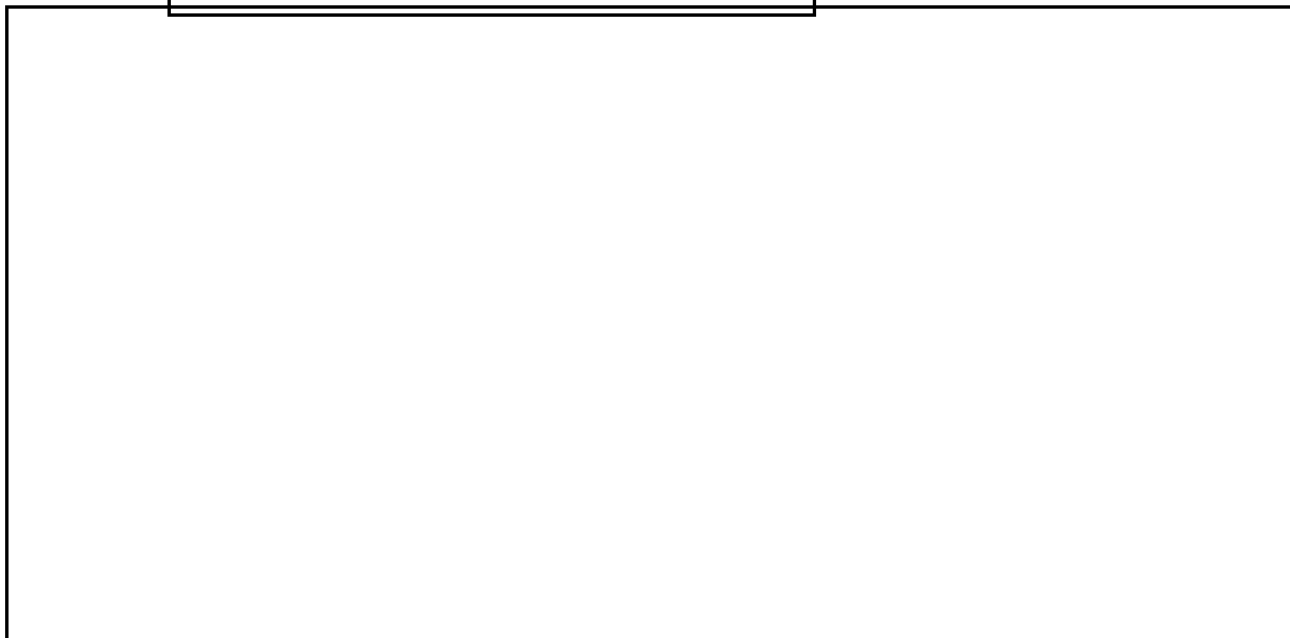


South Africa to Start Large Scale Uranium Mining Operations in South-West Africa: Mining development operations are in an intensive stage of development at the Rossing Uranium deposit in South-West Africa, and the area has been closed to all foreign visitors. Mine output is expected to reach 60,000 metric tons-per-day in 1976 and 120,000 metric tons-per-day by 1980. The grade of the deposit runs between 0.1 and 0.2 percent uranium oxide.

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Comment: A production of 60,000 metric tons-per-day would yield at least 20,000 tons of uranium oxide per year, making the area one of the largest uranium producers in the world. A uranium processing plant geared to handle at least 40,000 tons-per-day is under construction and may be enlarged to handle the additional volume of ore.

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AGROTECHNOLOGY AND FOOD RESOURCES

Soviet Swine Producers Concerned About Contaminated Feed:

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Comment: The Soviets apparently have a serious problem with toxins produced by fungi growing in improperly stored grain. This problem may be giving added impetus to recent efforts to improve serious deficiencies in Soviet post-harvest grain technology and storage practices.

Fusarium fungi growing in moist grain in storage can produce a toxin which results in the estrogenic syndrome in swine. The disease involves various reproductive system disturbances causing reduced litters and abortion. It also may result in greatly reduced weight gains.

A 1971 Soviet study indicated that toxins of the Fusarium fungi account for the greatest losses to livestock and poultry. Fungi growing in grain exposed to precipitation late in the harvest season or stored with over 17% moisture content achieved a dangerous toxicity level. Contamination of concentrated feed was higher than in bulk feed. Although present Soviet standards permit up to 17% moisture in stored grain in the moist northern and eastern regions, some Soviet researchers have objected because this moisture level may be conducive to fungal growth. [REDACTED]

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SCIENTIFIC AND TECHNICAL RESOURCES

Major Redesign of Soviet Grain Harvesting Combines Required: According to the chief designer of the Krasnoyarsk Combine Plant, fundamental changes in the design of Soviet grain harvesting combines will be necessary to overcome the Western advances in combine manufacturing. Larger bunkers (grain hoppers) on Soviet combines would reduce delays during harvesting in transferring grain from the combines to transport vehicles. Also, fewer vehicles would be required for hauling the grain from the fields. To accomodate larger bunkers, Soviet combines must be redesigned. Larger bunkers also will require developing smaller sized, but higher powered engines for driving the combines. Attempts to build combines with larger bunkers are constrained by the size limitations of railroad tunnels, the need for accessibility of components during operating and servicing, and the engineering required for efficient threshing of the grain. [REDACTED]

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Comment: Even during the poor 1975 crop year, special ad hoc demands were placed on the nonagricultural sector to supply trucks and manpower to support the Soviet grain harvest. Such drains on the economy to support the grain harvest will continue for at least several years because of the time required to redesign and produce improved grain combines and other needed agricultural machinery. The low productivity of Soviet combines prolongs the grain harvest, decreases volume and quality of grain, and increases the cost of harvesting.

The Soviet problem apparently was not resolved by recently equipping the SKD-5M combine with a 120-bushel bunker because the SKD-5M has limited threshing capacity and serious structural problems. Whereas leading Western combines can harvest up to 165 bushels (up to 4.5 tons) of wheat before unloading, the bunker capacities of all but one Soviet combine are less than 80 bushels with the majority being less than 50 bushels. [REDACTED]

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PHYSICAL SCIENCES AND TECHNOLOGIES

British Firm Makes First Commercial Announcement of Magnetic Bubble Memory Device: A British firm, Plessey Microsystems, plans to introduce an 8,192-by-1 bit magnetic bubble memory in early 1976 followed by a 16-K device during the summer. A 64-K-bit device is planned for the end of 1977. Announcement of demonstration models from Plessey are expected to beat or coincide with US (Hewlett-Packard and Rockwell International) announcements. The Plessey chips will be aimed at a solid state market between cores and discs.

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Comment: This is the first announcement of a commercial bubble device for the civilian market as opposed to announcements of prototype devices. Plessey previously reported that it had delivered a prototype 8-K-bit memory device to the Royal Aircraft Establishment for evaluation. The Plessey device is designed as a computer memory element. In this application, the device will be competitive with other new memory technologies. Should it prove successful, Plessey's early entry into the marketplace could give it a competitive edge. The first expected civilian application of the bubble device in the US is as a repertory dial for phone systems.

For the civilian market, bubbles are expected to compete with other new memory technologies, such as charge coupled devices (CCDs) in hierarchical storage applications, i.e., between main memory and auxiliary disks and drums. These applications seek to exploit the inherently faster access times of bubbles and CCDs relative to disks or drums.

Bubble memories for replacement of tapes have been developed in the US for military and space applications. Their lack of moving parts and resultant improved reliability is the main reason for this application.

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